

NOTES ON BRAZILIAN CYPERACEAE - I

Liene Teixeira Eiten
Instituto de Botânica, São Paulo

1. *Cyperus pelophilus* Ridley

Among specimens of *Cyperus* sent to me for determination by the Instituto Agrônomico do Norte, Recife, were encountered three examples of subgenus *Pycneus* from eastern Pernambuco. These were collected by Dr. Dárdano de A. Lima at the Usina Ôlho d'Água, about 20 km from the city of Aliança, where they were growing as weeds in a sugar cane field. Two of the collections were made on Sept. 13, 1958 and the third on Oct. 4, 1958. They are not provided with collection numbers. These three, plus another specimen from the Rio de Janeiro Botanical Garden (*Loefgren* 860, from Ceará), seemed to be all the same species. In Kükenthal's monograph (1936) the character "squamae sulcatae", used to separate sect. *Sulcatae* from the other sections in the subgenus, is neither clear nor exact. I therefore tried both leads in the key. Under sect. *Sulcatae* the material fell into *C. rivularis* Kunth, the only possibility in the section. This species is cited for America but not for Brazil. *Loefgren* 860 had been annotated as *C. rivularis* by M. Barros in 1955. However, the material did not fit the description of *C. rivularis* as a whole. The four collections differed in having more involucre bracts, the antheras having more numerous and much longer rays with more spikelets per ray, more nerves on the keel, and a flexuous (zig-zag) rachilla instead of a straight one. The achenes in the material were always oboval-oblong, compressed with concave faces, i.e. sulcate, and with a truncate apex with a short micro; the achene of *C. rivularis* is described as obovate, compressed-biconvex and shortly apiculate. (I had no material at hand of *C. rivularis* for examination.)

Trying the other sections, the four collections fell directly into sect. *Polystachyi*. Three species of this section, like the material at hand, are described as having sulcate achenes, *C. atribulbus* Kük., *C. pelophilus* Ridley and *C. sulsinux* C.B. Clarke. The first was known to Kükenthal only from two collections from southern Africa; it is described as perennial, the culms with bulbous bases. The material at hand is annual, the base of the culms is not bulbous, and, in general, the spikelets are much longer. From *C. sulsinux* the material differs in fundamental characters, but exactly fits *C. pelophilus* in these same characters, as shown in Table I.

Although the other species in the section did not fit the material, a special effort was made to see whether it was not a form of *C. polystachyos* Rottb., a very polymorphic species with non-sulcate achenes, occurring in both the Old and New World Tropics. Only the varieties *polystachyos* and *texensis* (Torr.) Fern. (var. *leptostachyus* Boeck.) were considered, since the other varieties recognized by Kükenthal seem to be merely variations of these two. Table II compares the material with

pelophilus and with the two varieties of polystachyos in those characters that most distinguish these taxa.

Table I

Character	<u>C. sulsinux</u> *	material	<u>C. pelophilus</u>
number of stamens	always 1	always 2	2
number of nerves on glume	3	5	5
anther shape	linear	short-oblong	short-oblong
number of involucre bracts	3-4	6, 6-7, 4-6, 5	5-6
achene shape	oblong or oblong-elliptic, apex acute, apiculate	obovate, apex truncate, apiculate	obovate, apex truncate, apiculate

* I was not able to see any material of this species; the information was taken from the text and illustrations in Kükenthal (1936) and Kern (1954).

Table II

Character	Material	<u>pelophilus</u>	<u>polystachyos</u> var. <u>polystachyos</u>	<u>polystachyos</u> var. <u>texensis</u>
underground organs	fibrous roots (annual)	fibrous roots (annual)	rhizomes (perennial)	(annual)
achene face	sulcate	sulcate	non-sulcate	non-sulcate
achene shape	obovate, apex truncate	obovate, apex truncate	oblong or subovate-oblong, apex subtruncate	obovate, apex truncate or rounded-truncate
achene length	1.1 - 1.3 mm	not given	0.75 - 1.0 mm	(0.8) - 1.0 mm
glume length mm	1.6-1.75 1.5-1.8 1.75 <u>1.6-1.7</u> for the 4 collections 1.5-1.8	not given	1.5 - 2.0	1.5 - 2.3

The material differs from polystachyos particularly in characters of the achene, an organ of highest importance in the Cyperaceae. It is concluded that the material is C. pelophilus.

Since C. pelophilus is cited only for Africa and Madagascar, this represents, so far as I know, the first citation of this species for the New World. It is not possible to tell if the species is native or introduced into northeastern Brazil. The Pernambuco specimens are weeds, but no habitat is given for the Ceará specimen, which was collected more than 50 years ago.

2. Cyperus capillifolius A. Richard



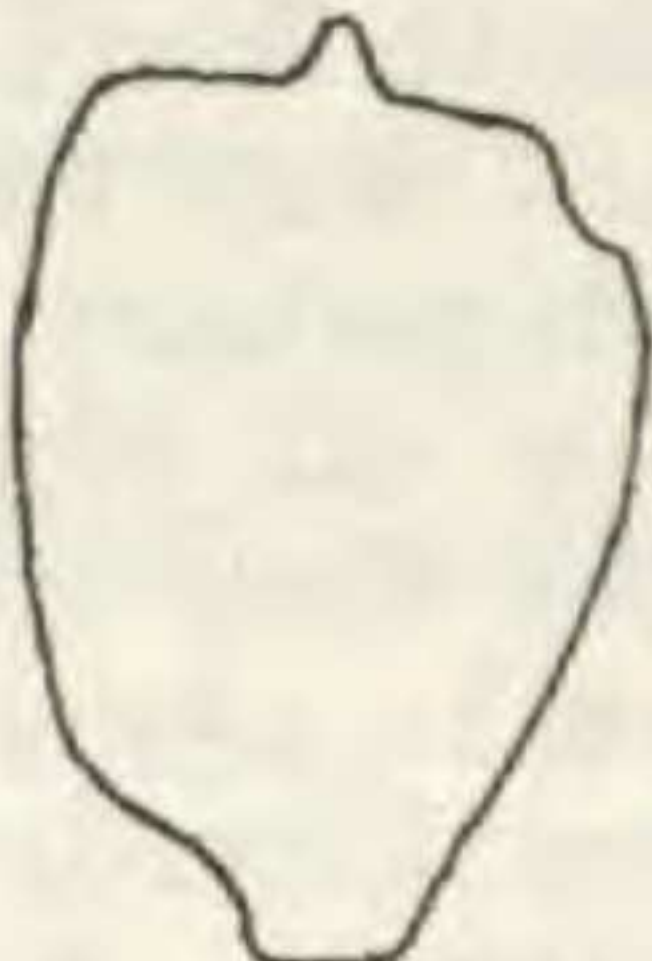





Examining three collections from the Rio de Janeiro Botanical Garden, G. Black 2162 B, L. O. Williams & S. V. Assiz 6799, and Brade 17597, I concluded that they were C. capillifolius. The first two had been annotated as C. rivularis var. lagunetto by M. Barros in 1955.

These three collections are neither C. rivularis Kunth var. rivularis nor C. r. var. lagunetto (Steud.) Ktze.; they differ in several important characters, especially in the bracts, glumes and achenes. Not having material at hand of C. rivularis or other well-identified material of C. capillifolius, the comparison was based on the descriptions and illustrations of these species as given by Ktze (1936), Fernald (1950), Mohlenbrock (1960), Gleason (1952) and Barros (1947). The following table shows the comparison.

Table III

Character	<u>rivularis</u> var. <u>rivularis</u>	<u>rivularis</u> var. <u>lagunetto</u>	material a = Brade 17597 b = Black 2162 B c = Williams & Assiz 6799	<u>capillifol-</u> <u>ius</u>
number of bracts	(2) 3-4	(1) 2-3	a- 2 b- 2 c- 2	2
glume length mm	2.0-2.5	2.1*	a- 1.25 b- 1.25 c- 1.25	1.25
achene length mm	1.0-1.5	1.0-1.1	a- 0.75 b- 0.70-0.90 c- 0.70	0.65**

Table III (continued)

Character	<u>rivularis</u> var. <u>rivularis</u>	<u>rivularis</u> var. <u>lagunetto</u>	material	<u>capilli-</u> <u>folius</u>
achene shape***				
				
				

* Calculated from drawing in Barros (1947).

** Calculated from drawing and from glume length given in text in Kükenthal (1936). The scale given in Kükenthal's drawing does not correspond to the amplification actually used.

*** To compare the achene profiles more easily, all were drawn to the same size.

The material evidently conforms to capillifolius and not to rivularis. The two varieties of the latter species have achenes with rounded or with short-acuminate apices, while the achenes of capillifolius and of the three collections at hand have truncate apices. In all of the three collections at hand I noticed a small apical depression on the adaxial side of the achene, as shown in the table. The drawing of the achene of capillifolius, from an African specimen illustrated by Kükenthal, does not show this depression. If the depression really is lacking in all African material and occurs in all American

material, it could at most be a basis for separating subspecies, since in all other characteristics the material from both continents is essentially equal.

According to the literature, Cyperus rivularis var. rivularis is restricted to North America, while the subspecies lagunetto occurs there and also in Central America and the Andine region of South America.

Kükenthal cites many collections of C. capillifolius from Africa and Madagascar; where altitudes are given or may be inferred they are all high. He mentions only one collection of this species from the New World, Riedel 1405 from Serra da Lapa, Brazil. According to Riedel's itinerary given in the Flora Brasiliensis, this refers to the Serra da Lapa near Belo Horizonte, Minas Gerais, not the mountain range of the same name near Bom Jesus da Lapa in Bahia.

The three collections at hand also come from southern Minas and all grow at high altitudes:

George Black 2162 B, 26 Feb 1944, Catas Altas. The city of Catas Altas, 60 km ESE of Belo Horizonte, lies at an altitude of about 800 meters, but the mountainous country around it reaches 2000 meters.

Louis O. Williams & S. V. Assiz 6799, 5 May 1945, Serra de Monjolo, 18 km WNW of city of Serro, Município de Serro. The map gives an altitude of 1063 meters along a road near the mountain range of Serra de Monjolo, but the range itself reaches much greater heights.

Brade 17597 & A. Barbosa, 24 April 1945, São Sebastião do Paraíso, Morro do Bau. The mountain, Morro do Bau, varies in height between 1000 and 1200 meters.

The fact that the Riedel collection cited by Kükenthal and these three further collections all come from the same general region and have not come to light anywhere else in Brazil so far makes it probable that the species is native in this region. If it were an introduced weed, one would expect it rather scattered around larger areas of the country in semi-dry mountainous areas. Unfortunately, no data on habitat is given with the collections to show how disturbed the area was where they were collected, which might testify to its native or introduced status. As a native it would be a further example of the floristic relationship between Africa and Central Brazil.

Bibliography

- Barros, M. 1947. Cyperaceae, in Descole, Genera et species plantarum argentinorum. Buenos Aires.
- Fernald, M. L. 1950. Gray's Manual of Botany. New York.
- Gleason, H. A. 1952. Britton & Brown Illustrated Flora. New York.
- Kern, J. H. 1954. Reinwardtia 3: 46-48.
- Kükenthal, G. 1936. Pflanzenreich IV-20. 101 Heft.
- Mohlenbrock, R. H. 1960. Amer. Midland Nat. 63: 270-306.

Fig. 1. Habit of Cyperus pelophilus Ridley (Loefgren 860, Ceará), X 1/2.

Fig. 2. Cyperus pelophilus Ridley (Loefgren 860).

- A. Spikelet, X 10.
- B. Rachilla of lower part of spikelet, X 25.
- C. Flexuous, winged rachilla of upper part of spikelet, X 25.
- D. Glume containing achene in natural position, X 25.
- E. Upper part of a glume showing micro, X 40.
- F. Flower, X 65.
- G. Mature achene, X 40, showing one of the sulcate faces.
- H. Transverse section of achene at the level indicated by the dashed line in G, showing the two sulcate faces. The depression is separated from the rest of the face by a sharp border.

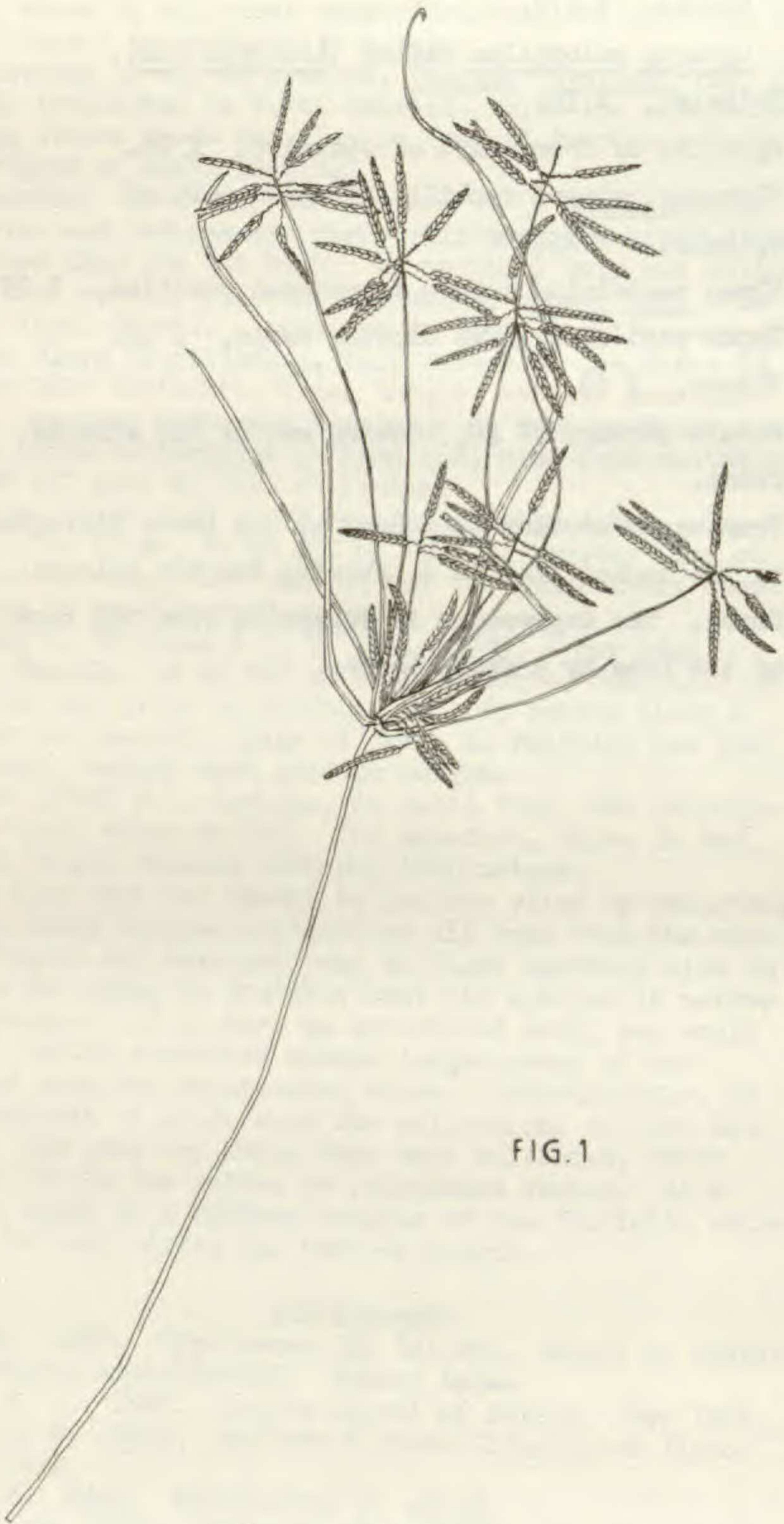


FIG. 1

FIG. 2

